

**REMARKS**

Review and reconsideration on the merits are requested.

**The Prior Art**

U.S. 5,985,781 Knowlton (Knowlton); U.S. 5,928,704 Takeda et al (Takeda);  
U.S. 5,364,886 Loliger et al (Loliger); U.S. 2002/0119238 Pires (Pires); U.S. 5,958,503  
Dumoulin et al (Dumoulin); Experimental Cookery, 2<sup>nd</sup> Edition, John Wiley & Sons, New York,  
Lowe B. (Lowe).

**The Rejections Presented**

Claims 1-3, 10 and 21 as anticipated by Knowlton.  
Claims 1-3, 10 and 21 as obvious over Knowlton.  
Claims 1, 4-16, 18-21 and 25 as obvious over Takeda in view of Loliger.  
Claims 1-3 and 5-10 as unpatentable over Loliger in view of Takeda.  
Claims 16 and 17 as obvious over Pires.  
Claims 16-19 and 21-24 as obvious over Dumoulin as “further evidenced by Lowe” and  
inv view of Takeda.

Applicants discuss these rejections in the order posed after discussing the amendments to  
the claims.

**Amendments to the Claims**

Applicants amend the claims into the product-by-process format.  
Essentially the limits of claims 5 and 8 are included into claims 1 and 10. With respect to  
the minimum temperature of 70°C used, this is fairly based upon the working Examples. See  
page 10, line 5 up, page 14, line 6 up, page 15, line 3, page 17, line 11, page 19, line 9 up and

other working Examples following the conditions of Example 1 where the temperature used was 70°C.

The product-by-process format is important as even when the amount of an acid as claimed in the present application is in a fat/oil, the amount present in a fat/oil are entirely different between the prior art and the present invention due to the amount of addition. For instance, in the case of ascorbic acid, if the same is added in an amount of 20 ppm, the amount which is actually present in the oil is 2 ppm following a standard method in the art relied upon by the Examiner while, in the case of the method according to the present application, the amount is more than 10 ppm, i.e., about a five fold increase following the process or method of the present invention.

Further, the amount of acid which is present in accordance with the present invention cannot be achieved if the amount of acid added is merely increased in a conventional method.

Applicants will file a DECLARATION UNDER 37 C.F.R. § 1.132 establishing that it is only when the process of the present invention is followed are the amounts of one or more acids according to the present invention present in the fat can be achieved.

Summary of the data for the 132 DECLARATION is as follows:

Fat/oil: Soybean oil (Although not hard butter, it is used for ice coating, etc. It is described in the present application as an example).

Conventional method: Ascorbic acid (6 g) is contacted with 500 g of fat/oil using a Nutsche funnel. Ascorbic acid is inherently not soluble in oil, and even when it is added to fat/oil, it is still necessary that the residue after dissolution is removed by filtration. This method is appropriate in that the conventional method is simulated. Further, the contacting time is as long as 30 minutes and that is extremely long in the conventional method.

→2.0 ppm

The process according to the present application: Fat/oil (1,000 g) is heated up to 120°C *in vacuo*; 2 cc of a 1% ascorbic acid solution is added and the mixture is allowed to cool *in vacuo* with stirring.

→13.3 ppm

If the dissolution is complete, the result is 20 ppm.

Thus, in the conventional method, the result is 2 ppm even if an excessively long contact time is used, while in the process according to the present application, ascorbic acid is efficiently dissolved in fat/oil and that is evidence establishing the differences in products between the prior art and the present invention.

#### **Anticipation Rejection over Knowlton**

As discussed above, it is Applicants' position that the prior art cannot achieve the amounts of acid in the product fat according to the present invention unless the process of the present invention is followed.

#### **Obviousness Rejection over Knowlton**

Applicants will traverse this rejection based on the DECLARATION... above mentioned which will shortly be submitted.

#### **Obviousness Rejection over Takeda in view of Loliger**

Again, Applicants wish to stress that the process of adding the acid in accordance with the present invention is not only different from that in Takeda and/or Loliger, but the amount of acid according to the present and the fat/oil is entirely different.

The Examiner's attention is directed to the fact that Loliger, apparently the only process teaching in the prior art with any reasonable amount of detail, eliminates solvent at a temperature

equal to or less than 60°C. For instance, see column 2, line 46, column 2, line 53 and claim 1. Product-by-process limitations in claims 1 and 10 have been amended to call for a minimum temperature of 70°C.

Further, following conventional methods, even when the amount of acid is increased, the amount of acid which will be present in the fat/oil will not even begin to reach that of the present invention.

Thus, Applicants must respectfully disagree with the Examiner's assertion that:

"One of ordinary skill in the art would be free to adjust the anti-oxidant content of the prior art according to the particular storage length desired in the final product."

Thus, with specific reference to claim 21 (and claim 25) ), in accordance with the present invention fatty taste is improved since organic acid is dissolved in a different form in the oil/fat from that in the prior art relied upon.

Applicant's respectfully submit that in accordance with the present invention fatty taste is improved since an organic acid is dissolved in a different form in the oil/fat from that in the prior art relied upon.

#### **Obviousness Rejection over Loliger in view of Takeda**

Applicants traverse for the same reasons regarding the rejection over Takeda in view of Loliger.

They further wish to point out that they respectfully must disagree with the Examiner's statement:

"It is well known that the saturated fat or Takeda is less susceptible to oxidation than unsaturated, which is often oil."

Again, for the reasons advanced, Applicants must disagree with the Examiner's statement at page 6 of the Action that:

"One of ordinary skill in the art would be free to adjust the anti-oxidant content of the prior art according to the particular storage length desired in the final product."

The Examiner's attention is directed to the fact that Loliger, apparently the only process teaching in the prior art with any reasonable amount of detail, eliminates solvent at a temperature equal to or less than 60°C. For instance, column 2, line 46, column 2, line 53 and claim 1. Product-by-process limitations in claims 1 and 10 have been amended to call for a minimum temperature of 70°C.

#### **Obviousness Rejection over Pires**

In Pires, perhaps the most relevant disclosure regarding the use of organic acids is in, for example, claim 8:

O/W emulsion according to one of the previous claims, wherein the acidulant is selected from lactic acid, citric acid, tartaric acid and/or malic acid and the proportion of acidulant is 0.001 to 0.1 wt.% (relative to the whole emulsion).

However, there is no disclosure in Pires of the **method** of adding an organic acid.

Pires also discloses in [0027] as follows:

"The O/W emulsion according to the invention can optionally contain acidulant as further hydrophilic constituent". However, again no particular adding method is discussed.

In Examples 1 and 2 of Pires the adding method thereof is one where syrup and a citric acid solution are mixed before whipping. Note the following description in Example 2 in paragraph [0054]:

“The o/w emulsion from Example 1 was mixed with fruit syrup and citric acid according to the following recipe before whipping”.

This disclosure in Pires relates to that an aqueous phase component which is added for conducting a o/w emulsification nearly at the same time of or immediately after the addition and an organic acid which is soluble in water and is very hardly soluble in oil is localized at the side of an aqueous phase.

According to the present invention, an organic acid is dissolved in fat/oil in a stable form even if it is used as an o/w emulsion and, at that time, an aqueous phase is removed by heating and decompressing, The remaining fat/oil is used for producing an o/w emulsion Therefore, the amount of the organic acid dispersed in the oil is entirely different.

The present invention is thus seen to be entirely different from Pires.

**Obviousness Rejection over Dumoulin “as further evidenced by” Lowe in view of Takeda**

Again, Applicants traverse essentially for the reasons earlier set forth regarding the product-by-process form of the claims now presented.

Applicants do, however, offer a few additional comments.

It is true that claim 16 does not define whether the product is a o/w type or a w/o type product.

Claim 17 is, of course, of the O/W type since “oil-in-water” is clearly recited in claim 17.

Additionally, Applicants wish to point out that the Takeda method would be one where an organic acid is added not to the milk fat particles *per se*, but to an aqueous phase surrounding the fat particles. This is similar to the basic argument as has been advanced with respect to Pires.

Thus, with specific reference to claim 21 (and claim 25), in accordance with the present invention fatty taste is improved since organic acid is dissolved in a different form in the oil/fat from that in the prior art relied upon.

The DECLARATION...1.132 mentioned above will shortly be submitted.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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